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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/264,547	03/08/99	JONES T	09943/006001

QM32/0727
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EXAMINER	
WILSON, J	
ART UNIT	**PAPER NUMBER**
3732	24

DATE MAILED: 07/27/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/264,547	JONES ET AL.	
	Examiner	Art Unit	
	John J. Wilson	3732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 May 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-120* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10-19,21-42,46-53,62-66,68-99,114,115 and 118-120* is/are rejected.

7)☒ Claim(s) *9,20,43-45,54-61,67,100-113,116 and 117* is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15)☐ Notice of References Cited (PTO-892)
16)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
18)☐ Interview Summary (PTO-413) Paper No(s). _____ .
19)☐ Notice of Informal Patent Application (PTO-152)
20)☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11-14, 72, 74 and 118-120 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The limitations of these claims contradict the limitation of claims from which they depend.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 5, 7, 8, 11-17, 19, 21-42, 46-53, 62-66, and 68-97 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al in view of Andreiko et al (243). Wu shows scanning and receiving a 3D data set, finding a component and creating a model of the component, column 7, lines 7-10. Wu does not show scanning a model. Andreiko teaches that it

is known to obtain data from a model. It would be obvious to one of ordinary skill in the art to modify Wu to include scanning a model as shown by Andreiko. During the building of a digital model from scanned data, the computer automatically applies tests to the incoming data to build the digital model, as an example see column 8, lines 6-15 of Wu. To call the resulting identified element a component is an obvious matter of choice in terminology to the skilled artisan. Wu does not show user selected boundary points. Andreiko (243) teaches user selection, see column 15, lines 56-68. It would be obvious to one of ordinary skill in the art to modify Wu to include user selection as shown by Andreiko (243) in order to better manipulate the desired regions. To use well known computer graphic tools for this manipulation is an obvious matter of choice in the use of known tools for a known result to one of ordinary skill in the art. As to claim 75, Wu teaches a 3D data set, however, does not show selecting based on an interproximal margin. Andreiko (243) teaches extracting the spacing between teeth. It would be obvious to one of ordinary skill in the art to modify Wu to include using the margins to manipulate data as shown by Andreiko (243) in order to better manipulate the desired regions. That the scanned data can be stored as a 3D volumetric representation is an obvious matter of choice in known imaging to one of ordinary skill in the art. The specific mathematical algorithm used to find the desired portion is an obvious matter of choice in known algorithms for segmentation of data to one of ordinary skill in the art.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al in view of Andreiko et al (243) and Poirier. Wu shows the steps described above, however, Wu does not show the use of X-ray or MRI to obtain data. Poirier teaches obtaining data using X-rays or an MRI, column 3, lines 12-20. It would be obvious to one of ordinary skill in the art to modify the above combination to include using X-rays or an MRI as shown by Poirier in order to make use of art known ways to best gather needed data.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al in view of Andreiko et al (243) and Andersson. Wu shows the steps described above, however, does not show data taken from a photographic image. Andersson teaches taking data from an image, column 2, lines 57-60. It would be obvious to one of ordinary skill in the art to modify the above combination to include using a photographic image as shown by Andersson in order to make use of art known ways to best gather needed data.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al in view of Andreiko et al (243) and Brandestini et al. Wu shows the steps described above, however, does not show data from directly imaging teeth. Brandestini teaches taking data from directly imaging teeth, column 2, lines 33-36. It would be obvious to one of ordinary skill in the art to modify the above combination to include using direct imaging as shown by Brandestini in order to make use of art known ways to best gather needed data.

Claims 10, 18, 98, 99, 114, 115 and 118-120 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al in view of Andreiko et al (243) and Andreiko et al (238). Wu shows the steps described above, however, does not show the segment being gum tissue. Andreiko (238) teaches data for the gums, see Abstract. It would be obvious to one of ordinary skill in the art to modify the above combination to include gum tissue as a component as shown by Andreiko (238) in order to treat the desired area of the mouth. The specific mathematical algorithm used to find the desired portion is an obvious matter of choice in known algorithms for segmentation of data to one of ordinary skill in the art.

Allowable Subject Matter

Claims 9, 20, 43-45, 54-61, 67, 100-113, 116 and 117 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed May 2, 2001 have been fully considered but they are not persuasive. Computer tests to identify "components" of scanned data are well known. The process is necessary to convert the scanned data into a digital model that can be displayed.

Conclusion

Any inquiry concerning this communication should be directed to John Wilson at telephone number (703) 308-2699.

John J. Wilson
Primary Examiner
Art Unit 3732

jjw
July 19, 2001
Fax 703-308-2708

Attachment for PTO-948 (Rev. 03/01, or earlier)
6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

Timing of Corrections

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a).

Failure to take corrective action within the set period will result in **ABANDONMENT** of the application.